

Report of tornadoes for the month of July, 1886, by Lieut. J. P. Finley, Signal Corps, U. S. Army, Assistant.

Place.	Date.	Time.	Direction.	Form of cloud.	Number of persons killed.	Number of persons wounded.	Width of path.	Number and kind of animals killed.	Number and kind of buildings destroyed.	Total valuation of property destroyed.	Authority.
							Yards.				
Florence, South Carolina .....	1	Not given.		Funnel					1 dwelling .....	Light .....	"Atlanta Constitution" and clippings.
Dallas, Missouri * .....	8	5.30 p. m.	se.	Funnel						Light .....	E. H. Matney.
Middleton, Kentucky † .....	8	6 p. m.		Funnel						Light .....	John W. Jones.
Sleepy Eye, Minnesota ‡ .....	9	12.30 a. m.		Funnel			25	Several horses	1 round-house, barns, chimneys, and out-buildings.	Great .....	"Pioneer Press," Saint Paul, Minnesota.
Bloomington, Illinois .....	9	7.30 p. m.	s.	Funnel						Great .....	"Evening Star," Washington, D. C.
De Leon and Mooresville, Texas .....	12	1 to 5 p. m.							1 church, 1 school-house, and several dwellings.	Great .....	"Chicago News," and clippings.
Millbrook, Pennsylvania .....	13	Night .....	e.	Funnel			15		1 barn .....	Light .....	Clippings.
Newark, Ohio .....	14	2.30 a. m.	n.	Funnel					2 buildings .....	Great .....	Clipping.
Barnesville, Ohio .....	14	2.30 a. m.	ne.	Funnel			50		Several barns, stables, and dwellings.	Great .....	D. H. Kemp, "Barnesville Republican," and clippings.
Lunenburg County, Virginia .....	18	Not given.		Funnel in air.			30		Many out-houses.	Considerable .....	"Saint Louis Globe-Democrat."
Petersburg, Dakota .....	23	4.30 p. m.	e.	Funnel			20		Few buildings .....		J. H. Peterson.
Great Barrington and Leominster, Massachusetts. ‡ .....	30	Not given.		Funnel			25		Several dwellings .....	Considerable .....	"Berkshire Courier" and "Cincinnati Enquirer."
Potaskola, Allen town, and Vaughnsville, Ohio .....	30	10.40 a. m.	e.	Funnel	Many	Many	50	Many animals	Many .....	Considerable .....	"The Washington Post."
Wethersfield, Connecticut .....	30	5 a. m.	se.	Funnel							"Hartford Times" and "Saint Louis Globe-Democrat."
Wethersfield, Vermont .....	30	Not given.	se.	Funnel			25		Many .....	\$20,000	"Cincinnati Enquirer."

\* Tornado in air, with very high wind at surface.

† Apex touched ground, and electric bolt discharged, burning portion of corn field and plowing path three feet deep in its course.

‡ Two heavy, dark clouds, one in the nw. and the other in ne., driven by a furious wind, rapidly approached the city and met near the round-house, and did considerable damage.

§ Mr. Brainard, while watching the clouds as they approached, saw one which had a very peculiar motion. While it kept on horizontally it would drop down to a point and then be drawn up, all the time whirling rapidly.

Philadelphia, Pennsylvania: on the night of the 22-23d a storm of wind and rain passed over this city and did considerable damage, especially in that part south of Reed street. Several houses were unroofed and a number of trees blown down.

Huron, Dakota: on the afternoon of the 24th a heavy thunder and hail storm occurred about four miles south of this place. Some of the hail-stones were as large as a walnut. Hail fell over an area of country two miles wide and two and a half long; within this space crops were seriously injured by hail and wind.

Fort Assinaboine, Montana: on the 26th fair weather, with brisk winds from the southwest and west, prevailed, except for a short time during the afternoon, when a high westerly gale of fifty-nine miles per hour set in. For a few minutes the wind attained a velocity of nearly seventy miles per hour, filling the air with sand, and even small gravel, and shaking heavy brick buildings. A large brick storehouse forty-five by one hundred and fifty-five feet, belonging to the Quartermaster's Department, was leveled to the ground. This storm possessed none of the features of a tornado, but was merely a violent gale.

Columbus, Ohio: the morning of the 30th was cloudy and threatening with wind from the south until 1.55 p. m. when it suddenly veered to the northwest. At 2 p. m. heavy rain began falling, with a gale of thirty-nine miles per hour from the northwest; the high wind continued until 2.40 p. m., when it began to subside, rain ceased falling at 3.20 p. m.; total fall in an hour and twenty minutes, 2.83 inches. The storm did considerable damage in the city and surrounding country. In the city the greatest injury to property was done in the northern and central portions. The Columbus rolling mill was demolished, killing one person and injuring twelve; the loss incurred was about \$5,000. The Union depot was damaged to the extent of about \$1,000, a part of the roof being blown off. Numerous dwellings were unroofed, and cellars in all parts of the city were flooded.

Windsor, Illinois: on the 30th a severe storm passed south of this place, doing considerable damage to trees and fences, and blowing down wheat and hay-stacks.

## COTTON REGION REPORTS.

In the following table are given the means of the maximum and minimum temperatures and the average rainfall for the cotton districts during the month of June. For the purpose of comparison, the averages for these districts during the four preceding years are also given. The rainfall, as compared with the average of four years, is excessive in the districts of Wilmington, Savannah, Augusta, Atlanta, and Montgomery; in the remaining districts the rainfall was below the average, the deficiencies in the Vicksburg and Memphis districts being large. The mean of the maximum temperatures was below the average in all districts, except that of Memphis.

Temperature and rainfall data for the cotton districts, July.

Districts.	Rainfall.			Temperature.								Extremes for July, 1886.	
	Average for July of four preceding years.	Average for July, 1886.	Departures.	Maximum.				Minimum.					
				Mean for July of four pre- ceding years.	Mean for July, 1886.	Departures.	Mean for July of four pre- ceding years.	Mean for July, 1886.	Departures.				
	Inch.	Inch.	Inch.	°	°	°	°	°	°	°	°	Max.	Min.
New Orleans...	4.26	4.26	0.00	93.3	91.5	— 1.8	73.6	71.2	— 2.4	100	61		
Savannah...	5.12	8.21	+ 3.09	92.8	90.4	— 2.4	71.8	72.6	+ 0.8	101	64		
Charleston...	6.42	6.14	— 0.28	92.0	90.3	— 1.7	70.6	70.1	— 0.5	99	61		
Atlanta...	3.77	4.99	+ 1.22	90.6	88.7	— 1.9	68.8	68.3	— 0.5	100	57		
Wilmington...	4.61	8.43	+ 3.82	91.0	89.3	— 1.7	68.8	69.3	+ 0.5	105	59		
Memphis...	4.30	2.21	— 2.09	90.3	90.5	+ 0.2	68.8	67.1	— 1.7	104	45		
Galveston...	2.18	1.72	— 0.46	95.5	94.7	— 0.8	72.5	73.5	+ 1.0	108	33		
Vicksburg...	5.63	3.00	— 2.63	92.2	91.4	— 0.8	71.1	72.4	+ 1.3	98	33		
Montgomery...	4.22	4.70	+ 0.48	92.1	90.1	— 2.0	69.0	69.1	+ 0.1	102	35		
Augusta...	3.56	5.53	+ 1.97	92.7	90.0	— 2.7	70.4	68.9	— 1.5	100	37		
Little Rock...	2.55	2.75	+ 0.20	93.0	91.9	— 1.1	67.9	68.9	+ 1.0	103	30		
Mobile...	3.87	3.42	— 0.45	93.9	91.7	— 2.2	70.7	69.2	— 1.5	105	32		

## NAVIGATION.

### STAGE OF WATER IN RIVERS.

Owing to the great deficiency of rainfall in the Missouri Valley during May, June, and July, the river has been falling slowly. On the 18th the steamer "Rosebud," drawing less water than any boat running on the upper Missouri, arrived at the mouth of the Marias River, twelve miles below Fort Benton, Montana, and on account of the low water was unable to pro-